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## THE GENUS *HYLEMYA* IN NEPAL, WITH DESCRIPTIONS OF TWO NEW SPECIES (DIPTERA : ANTHOMYIIDAE)

By MASAOKI SUWA

Research Trips for Agricultural and Forest Insects in the Subcontinent of India,  
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Diptera 10.

### Abstract

SUWA, M. 1989. The genus *Hylemya* in Nepal, with descriptions of two new species (Diptera : Anthomyiidae). *Ins. matsum. n. s.* 42 : 1-29, 62 figs.

Six Nepalese species of *Hylemya* are dealt with. Of them two species, *H. flavicruralis* based on the male only and *H. longirostris* on both sexes, are described as new to science, and another species, *H. femoralis* Stein, is recorded as new to Nepal. *H. flavicruralis* is characterized by the unnarrowed distiphallus and *H. longirostris* by the much lengthened proboscis. The ovoviviparity in all the Nepalese species except *flavicruralis* was indicated by frequent discoveries of a large larva (1st or 2nd instar) in the female abdomen.

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### Contents

Introduction .....	2
Key to the species of <i>Hylemya</i> known from Nepal .....	2
Descriptions of the species	
1. <i>Hylemya flavicruralis</i> sp. nov. ....	3
2. <i>Hylemya longirostris</i> sp. nov. ....	5
3. <i>Hylemya takagii</i> Suwa .....	8
4. <i>Hylemya detracta</i> (Walker) .....	11
5. <i>Hylemya femoralis</i> Stein .....	12
6. <i>Hylemya probilis</i> Ackland .....	15
References .....	18

## INTRODUCTION

Most of the species once treated under the genus *Hylemya* are now classified in other genera, and no species has recently been added to the genus except for a few described from Nepal (Ackland, 1967; Suwa, 1977) and China (Fan et al., 1982). Accordingly the name *Hylemya* is presently used for a small group represented by less than 15 species from the world. From Nepal 3 species of the genus have been recorded.

In the present study I have examined a considerable number of specimens of *Hylemya* from Nepal, which were mostly obtained in connection with the Kyūshū University Scientific Expedition to the Nepal Himalaya, 1972, and the Research Trips for Agricultural and Forest Insects in the Subcontinent of India, 1983. The specimens examined contain 6 species, of which two are new to science and another is new to Nepal. In common with other species of *Hylemya* except *H. partita* (Meigen), the Nepalese species dealt with in this paper have the following characters: - Parafrontals without *ors* in male; mesonotum unsetulose between rows of *acr*; 2nd *ph* much weakened like accessory setulae or lacking; hind tibia without apical *pv*. These characters are, therefore, not repeated in the succeeding descriptions.

Before going further I wish to express my sincere thanks to Dr. H. Shima, Kyūshū University, for his kindness in giving me the opportunity to study the Nepalese material collected by the university expedition. My cordial thanks are also due to Prof. S. Takagi, Hokkaidō University, the leader of our research trip in Nepal, and to Dr. K.C. Sharma, Agricultural Department of Nepal, the chief Nepalese partner of the trip, for their great contribution to the project. Dr. V.K. Thapa, Tribhuvan University at Kathmandu, helped me in various ways during my stay in Nepal, 1983 and 1988.

## KEY TO THE SPECIES OF HYLEMYA KNOWN FROM NEPAL

### Males and females

1. Mesonotum with 1 pair of *pre-acr*. . . . . 2
- Mesonotum with 2-3 pairs of *pre-acr*. . . . . 3
2. Legs wholly blackish; epistoma distinctly projecting beyond tip of parafrontal angle; haustellar mentum distinctly longer than  $A_2$  and  $A_3$  combined and about as long as fore metatarsus. . . . . 2. *longirostris* sp. nov.
- Legs largely yellow; epistoma less projecting, about as far as tip of parafrontal angle; haustellar mentum about as long as  $A_2$  and  $A_3$  combined and much shorter than fore metatarsus. . . . . 4. *detracta* (Walker)
3. In male, mid and hind femora wholly yellow;  $f_2$  near apex with 1 distinct *a* discernible; palpi yellowish on basal half. Female unknown. . . . . 1. *flavicruralis* sp. nov.
- In male, all femora blackish;  $f_2$  near apex with no *a* discernible; palpi wholly blackish. Female known. . . . . 4
4. Mesonotum with 3 pairs of *pre-acr*; wings with costal thorns minute and much shorter than *h*-vein in male, rather strong and a little shorter than, or occasionally as long as, the vein in female; larger in size, wing-length more than 7 mm in male and more than 6.5 mm in female. . . . . 3. *takagii* Suwa
- Mesonotum with 2 or occasionally 3 pairs of *pre-acr*; wings with costal thorns rather strong and a little shorter to a little longer than *h*-vein in male, well developed and distinctly longer than the vein in female; smaller in size, wing-length less than 7 mm in male and less than

- 6.5 mm in female. .... 5
5. Legs partly (in male) or largely (in female) yellow; epistoma situated slightly behind tip of parafrontal angle; haustellar mentum a little to rather distinctly shorter than  $A_2$  and  $A_3$  combined, and when macerated, less than 1.5 times as long as wide. ... 5. *femoralis* Stein
- Legs wholly blackish in both sexes; epistoma projecting as far as or slightly beyond tip of parafrontal angle; haustellar mentum as long as or slightly longer than  $A_2$  and  $A_3$  combined, and, when macerated, more than 1.5 times as long as wide. .... 6. *probilis* Ackland

## DESCRIPTIONS OF THE SPECIES

### 1. *Hylemya flavicruralis* sp. nov.

(Figs. 1-7, 26, 32, 43)

Type material. Bagmati: Siwapuri, alt. 2,500-2,700 m, Kathmandu Valley, 2♂ (one the holotype, in EIHU=Entomological Institute, Hokkaidō University), 19-20. vii.1983 (M. Suwa).

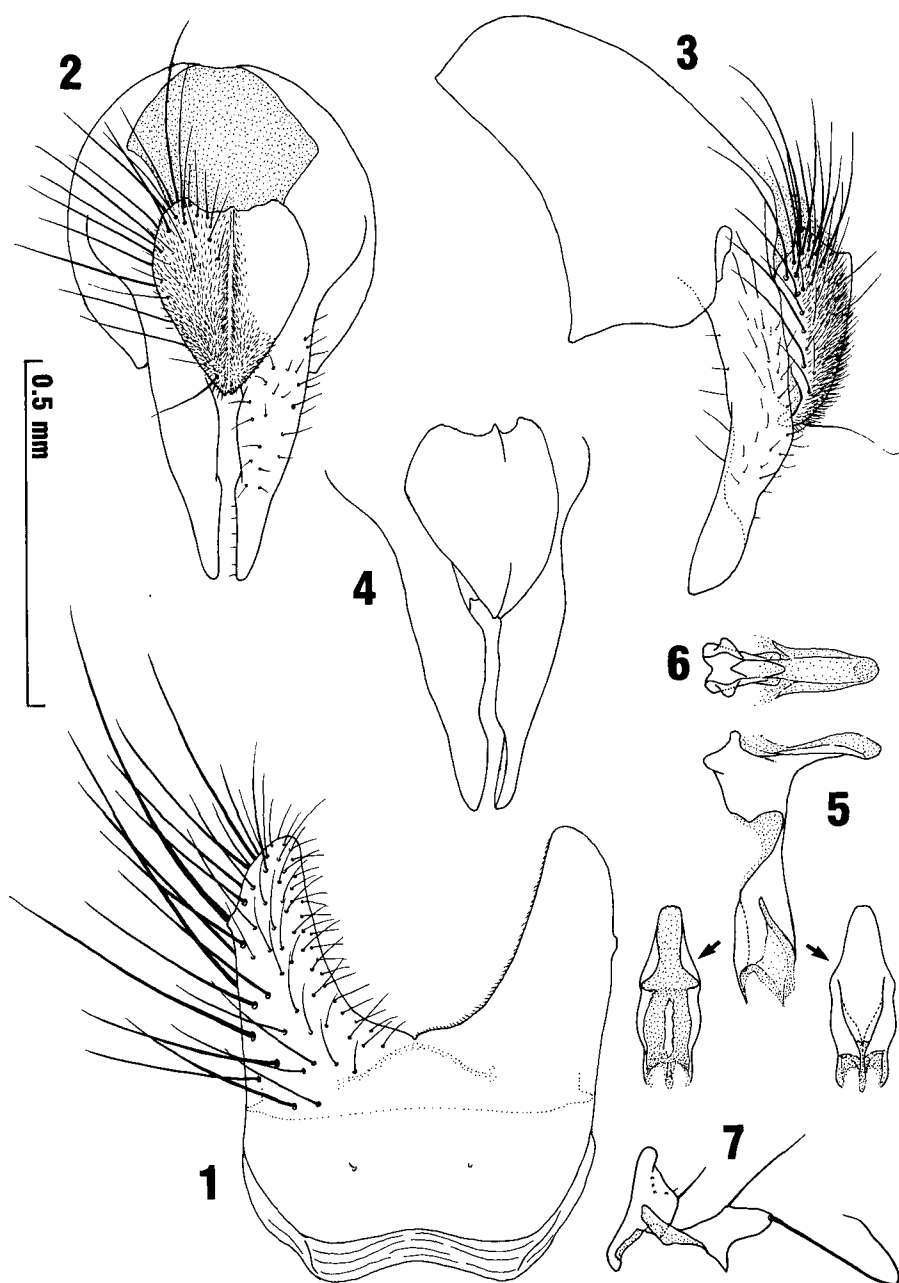
♂. Wing-length 6.4 mm. Body blackish in ground colour. Head whitish grey pollinose; occiput in pollinosity slightly bluish, with a faint purplish tinge; antennae blackish, with  $A_2$  narrowly brown at apex dorsally; palpi yellowish on basal half and blackish apically; haustellar mentum blackish in ground colour, rather thinly greyish pollinose. Thorax pale grey in pollinosity, slightly brownish in places; mesonotum brownish pollinose along rows of *acr* and transverse suture, between *dc* and *prst* before suture, between *dc* and *ia* behind suture, and around bases of setae, and rather obscurely darkened on lateral declivities in some lights. Abdomen pale grey or bluish grey in pollinosity, with or without a yellowish tinge; median vitta and fore-marginal bands narrow; hind-marginal bands indiscernible; 5th sternite a little brownish along inner margin of processes; epandrium brownish; cercal plate brownish yellow. Legs mainly yellow; coxae dark brown, partly blackish; fore coxa brownish yellow apically in paratype; trochanters brown or brownish yellow, partly darkened; femora yellow;  $f_1$  partly (in paratype) or largely (holotype) darkened, always yellow near base and apex; all tibiae entirely yellow; tarsi blackish. Wings distinctly tinged with yellow or brownish yellow; calyptrae tinged with brownish yellow, with fringe dark brown.

Head comparatively short, 1.36 (in holotype)-1.46 (paratype) times as high as long (Fig. 32); frons about half as wide as anterior ocellus (Fig. 26); parafrontals contiguous, with 3-4 *ori*; *if* indiscernible;  $A_3$  about 2.8 times as long as wide; arista with the longest hairs 1.6 (paratype)-2.1 times as long as  $A_3$ -width; orbits at parafrontal angle distinctly narrower than  $A_3$ ; epistoma situated a little behind tip of parafrontal angle; haustellar mentum\* as long as or somewhat longer than palpi, and a little shorter than  $A_2$  and  $A_3$  combined, and, when macerated (the paratype was macerated), about 1.7 times as long as wide (Fig. 43); occiput with no setulae on upper plane.

Mesonotum with 2 pairs of *pre-acr* and 6-7 pairs of *post-acr*, and with 1 or a few accessory setulae present along or near the rows of *post-acr*; distance between the

\* The haustellar mentum, unless macerated, is difficult to measure exactly, but even an approximate measurement may be helpful for identification.





Figs. 1-7. *Hylemya flavicruralis* sp. nov., ♂. 1, 5th sternite; 2, hypopygium, dorsal view; 3, ditto, lateral view; 4, ditto, dorsolateral view; 5, basiphallus and distiphallus; 6, basiphallus, dorsal view; 7, praegonite and postgonite. Holotype from Siwapuri.

setae of 1st pair of *pre-acr* about 0.6 times as long as that to *dc*-rows; mesopleura with a strong anterior *mpl*, and with 0-3 fine setulae around *pstg*.

Abdomen long-ovoid, about 1.7 times as long as wide; 4th tergite with discal setae hardly distinguishable from ground setulae; 5th tergite with discal setae rather strong and easily distinguishable from ground setulae; terminalia as in Figs. 1-7; surstyli long, with excess part beyond cercal plate about as long as the plate; praegonite with 2 long setae, especially the lower one much lengthened; postgonite broadened medially, with 1 short seta; distiphallus unnarrowed, with acrophallus discernible and not fused with paraphalli; epiphallic lamella scarcely dilated.

Mid femur with 5-6 *pv* in basal half and 1 *a* near apical fifth;  $f_3$  with 5-6 strong and a few weaker *av*, and with 1 *pv* (practically *v*) near base, 2 *pv* in basal fourth (only in holotype; weak in comparison with other *pv*), 2-3 *pv* in median third and 1-2 *pv* near apex;  $t_1$  with 1 *ad* and 1 *pv*;  $t_2$  with 1 *ad*, 1 *pd*, 1 *p* and 1 *pv*;  $t_3$  with 2 (3 on left leg in paratype) *av*, 3-4 *ad*, 2 *pd* (1 additional *pd* discernible in paratype) and 2 *pv*, in paratype 1 strong *p* present on each leg. Wings with costal thorns\* distinct, as long as or somewhat shorter than *h*-vein; *dm-cu* rather weakly sinuate.

♀. Unknown.

Distribution. Nepal.

Remarks. The distiphallus of this species is broad in lateral view and not lengthened on the paraphalli, and is rather similar to that of *H. partita*, in which the distiphallus is, however, more derivative in having the acrophallus completely fused with the paraphalli as in other species of *Hylemya*. In other characters, such as the parafrontals without *ors*, the mesonotum unscutose between the rows of *acr*, and the hind tibia without apical *pv*, *H. flavicruralis* is similar to the species other than *partita*. At a glance, due to the largely yellowish legs, the present species resembles *H. nigrimana* (Meigen), especially the European form, which is, however, readily distinguished from the former by the following characters: - Palpi wholly blackish; mesonotum with 3 pairs of *pre-acr*;  $f_2$  with no *a* visible near apex in male\*\* ; terminalia different in structure.

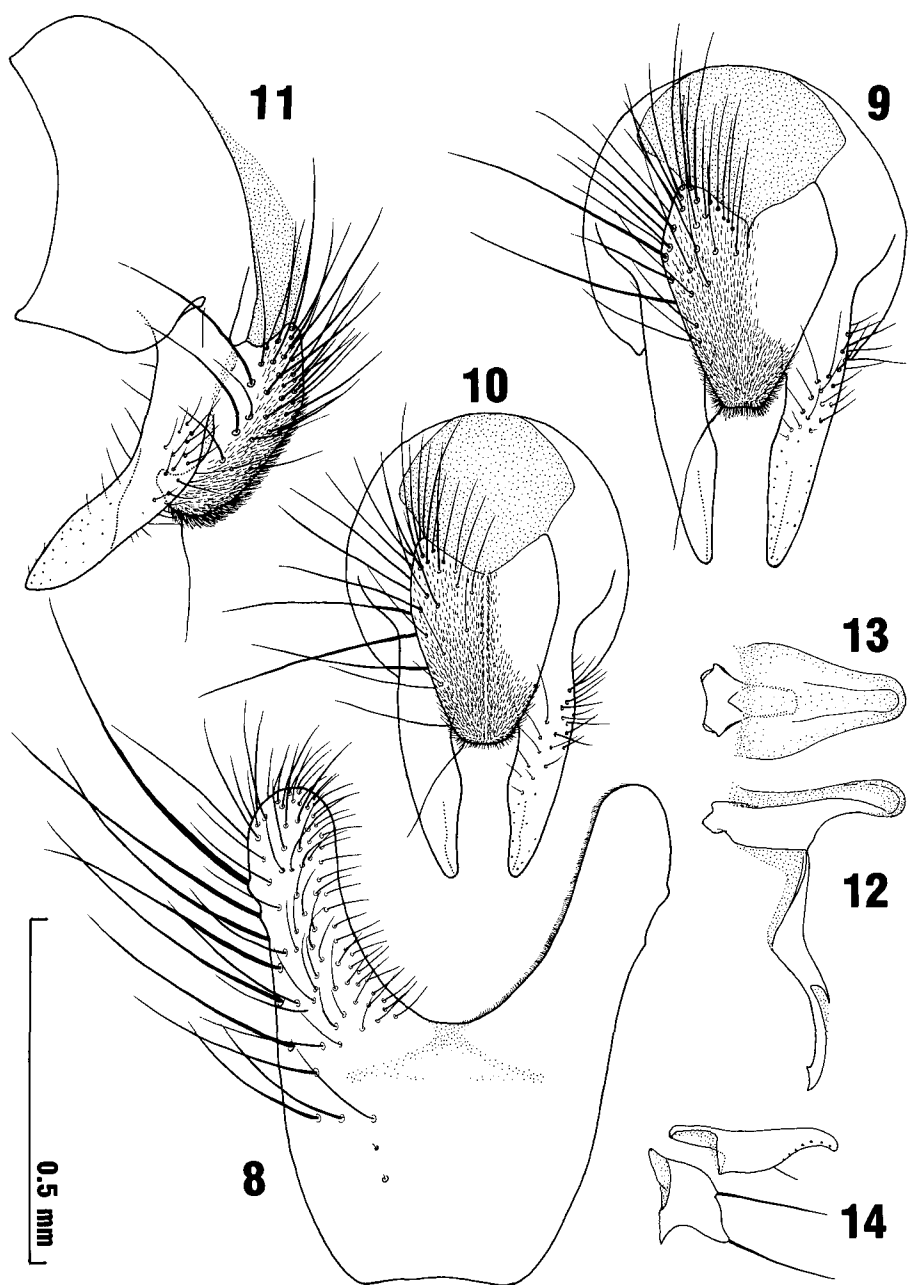
## 2. *Hylemya longirostris* sp. nov.

(Figs. 8-14, 27, 33-34, 44-45, 55-56)

Type material. Janakpur: Dongo Kharka - Beding, alt. 3,000-3,300 m, Rolwaling Valley, 4♂ (one the holotype, EIHU), 1♀, 22-23.viii.1983 (M. Suwa); Supbu Kharka, alt. 3,300-3,700 m, Rolwaling Valley, 1♂, 1♀, 16.viii.1983 (M. Suwa); Beding, alt. 3,600-3,800 m, Rolwaling Valley, 1♂, 17-21.viii.1983 (M. Suwa). Bagmati: Ghora Tabela, alt. 3,000 m, Langtang Valley, 1♀, 29.ix.1975 (S. Takagi); Dada

\* Two, dorsal and ventral, spine-like setae situated just before the subcostal break. They are more or less different in length, and the ventral one is usually longer than the dorsal. The longer one is used for comparison with the length of other parts.

\*\* In *Hylemya* mid femur is always armed with 1 distinct *a* near apex in the females, yet the seta is not found in the males of certain species, e.g., *vagans* (Panzer), *latevittata* Stein, *alcathoe* (Walker), and the Nepalese species in this paper except the present *flavicruralis*. In some other species the seta may be present or absent according to localities or populations. For example, in the male of *nigrimana*, this seta is not seen in the European and the Taiwanese forms, yet is present in the Japanese one. In the male of *femorialis*, it is present in the Taiwanese form, while absent in the Nepalese one.



Figs. 8-14. *Hylemya longirostris* sp. nov., ♂. 8, 5th sternite; 9-10, hypopygium, dorsal view; 11, ditto, lateral view; 12, basiphallus and distiphallus; 13, basiphallus, dorsal view; 14, praegonite and postgonite. Paratypes from Thurukpa - Topke Gola (8-9, 11-14; 10).

Kharka - Ghopte, alt. 3,300-3,600 m, Gosainkund Lekh, 1♂, 26.ix.1983 (M. Suwa). E. Nepal : Thurukpa - Topke Gola, alt. 2,600-3,700 m, 2♂, 12.vi.1972 (H. Shima).

♂. Wing-length 7-7.7 mm (5.8 mm in 1 paratype). Body and appendages blackish in ground colour, with a brownish tinge in pollinosity especially on frons and mesonotum. Frons and parafacials brownish pollinose, paler on lower part of frons; face in pollinosity grey and more or less brownish; cheeks and occiput pale grey pollinose, faintly or slightly tinged with brown. Mesonotum mainly brownish pollinose, paler between *dc* and *acr* before transverse suture, between *dc* and *ia* behind suture and on peripheral region; in caudal view with some black markings discernible, namely broad median and narrow sublateral vittae and broad lateral patches. Abdomen in pollinosity pale grey and faintly bluish, with a slight brownish tinge; brownish pollinose fore- and hind-marginal bands and median vitta present; fore-marginal bands rather broad on 3rd and 4th tergites, with brownish pollinosity discernible in any angles of view; hind-marginal bands narrow, and in caudal view blackened; median vitta moderate to rather broad and obscurely margined at a high angle in caudal view, and at a low angle sharply blackened and narrowing cephalad on each tergite. Wings with a dark brownish tinge; calyptrae pale, slightly tinged with yellow or brownish yellow.

Head 1.15-1.2 times as high as long (Fig. 33); frons about half as wide as anterior ocellus (Fig. 27); parafrontals contiguous, or nearly so, for a short length, with 5-6 strong and often 1 or 2 fine *ori*; interfrontalia with a pair of fine *if*;  $A_3$  2.3-3 times as long as wide; arista with the longest hairs 1.3-1.8 times as long as  $A_3$ -width; orbits at parafrontal angle distinctly wider than  $A_3$ ; parafacials at narrowest part usually a little wider than  $A_3$  (about as wide as the latter in the smallest specimen); face distinctly concave near epistoma, with facial carina well developed; cheeks as high as or slightly higher than orbital width at parafrontal angle; epistoma distinctly projecting beyond tip of parafrontal angle; proboscis much lengthened; palpi a little or rather distinctly longer than  $A_2$  and  $A_3$  combined (as long as the combined length in 1 specimen); haustellar mentum distinctly longer than palpi, about as long as fore metatarsus, and, when macerated (1 specimen macerated), 4.5 times as long as wide (Fig. 44); occiput with some setulae discernible on each upper plane.

Mesonotum with 1 pair of *pre-acr*, distance between the setae half to two-thirds of that to *dc*-rows; 2 or rarely 3 pairs of *post-acr*; *pra* shorter than posterior *ntpl*; mesopleura with anterior *mpl* much weakened and usually indistinguishable from adjacent setulae, and with 0-2 fine setulae (none in general) discernible around *pstg*.

Abdomen half-depressed, and 1.9-2.3 times as long as wide; 4th tergite with discal setae undeveloped and hardly distinguishable from ground setulae; 5th tergite with discal setae scarcely or weakly developed, often difficult to be distinguished from ground setulae; terminalia as in Figs. 8-14; surstyli with excess part beyond cercal plate shorter than the plate; cercal plate densely pilose; praegonite with 2 setae longer than itself; postgonite with 1 short seta; epiphallal lamella dilated.

Mid femur with 3-4 *pv* in basal third, and with no *a* near apex;  $f_3$  with 6-9 *av*, 3-6 *pv* in basal two-thirds and 1 *pv* near apex, most of the *av* being well developed and the longest one 1.8-2.4 times as long as  $f_3$ -height;  $t_1$  with 1 *ad* and 1 *pv*;  $t_2$  with 1 *ad*, 1 *pd*, 1 *p* and 1 or rarely 2 *pv*, the *ad* being small and sometimes indiscernible, and the *p* approaching a little to posterodorsal surface in a few cases;  $t_3$  with 2 or

sometimes 3 *av*, 3 (sometimes 2) *ad*, 2 *pd* (only 1 *pd* visible on each leg in 1 specimen, and in another specimen 1 small *pd* added on the left tibia), and a few or some (usually 3-5) *pv*. Wings with costal thorns distinct though shorter than *h*-vein; *dm-cu* sinuate.

♀. Wing-length 5.7-6.4 mm. Body and appendages blackish as in male. Interfrontalia wholly blackish in ground colour, not reddish even near lunule, and dark brownish in pollinosity. Head about 1.1 times as high as long (Fig. 34); parafrontals with 3-4 *ori*; haustellar mentum about as long as fore metatarsus as in male, yet much wider than in male, about 2.4 times as long as wide when macerated (Fig. 45; 1 specimen macerated).

Abdomen with 1-3 setulae on each lateral side of 1st sternite or entirely bare on the sternite; ovipositor shortened (Figs. 55-56; 3 specimens dissected); 6th and 7th tergites each reduced into 2 small lateral sclerites; 6th segment with 6th and 7th spiracles on or near tergal sclerite and with 1 seta (2 setae on the left side in 1 specimen) near 7th spiracle; 6th tergal sclerite more or less variable in sclerotization on lower part, in 1 specimen the area around the spiracles and the seta entirely membranous, in another specimen the tergal sclerite narrowly projecting to reach the 7th spiracle and the seta, and in the rest the sclerite rather developed to include both spiracles and the seta; 7th segment with 1 seta at lower-posterior corner of each tergal sclerite; 8th tergite divided into 2 plates by median membranized area on whole length (in 2 specimens) or except on narrow anterior part (in 1 specimen), with 3 setae present on each plate posteriorly; 6th and 7th sternites much longer than cerci, the 7th being smaller than the 6th, each sternite with 2-3 setae along either side on posterior part; 8th sternite represented by a pair of small sclerites, each with 1 (2 on the left in 1 specimen) seta.

Mid femur near base with 1 *av* and 2-3 *pv*; *f*<sub>3</sub> with 4-5 *av*, and with 1 *pv* near base, 0-1 *pv* near middle or basal third, and 1 *pv* near apex; *t*<sub>2</sub> with the *ad* always present and strong; *t*<sub>3</sub> with 2 *av*, 2 *ad* and 2 *pd*, no *pv* discernible. Wings with costal thorns strong, and longer than *h*-vein.

Distribution. Nepal.

Remarks. This species is ovoviviparous. A large larva (1st instar) was found in 2 of 3 dissected females. *H. longirostris* is very peculiar in having a much lengthened proboscis, and such an elongate proboscis is not seen in any other known species of *Hylemya*. The male terminalia with densely pilose cercal plate, rather long surstyli and dilated epiphallallic lamella, and the female terminalia with less reduced 6th and 7th seternites — these features may suggest that the present species is related to *probilis* rather than to any others.

### 3. *Hylemya takagii* Suwa, 1977

(Figs. 28, 35-36, 46-47, 57-58)

*Hylemya takagii* Suwa, 1977: 19.

Material examined. Bagmati: Syabru - Sing Gompa (=Syng Gompa), Gosainkund Lekh, 2♂ (holotype and paratype), 1.x.1975 (S. Takagi); ditto, alt. 2,500-3,000 m, 10♂, 1♀, 23.v.1988 (M. Suwa); ditto, alt. 3,000-3,200 m, 2♀, 21.ix.1983 (M. Suwa); Dada Kharka - Ghopte, alt. 3,300-3,600 m, Gosainkund Lekh, 8♂, 5♀,

26.ix.1983 (M. Suwa); Magen Gotha - Tare Pati, alt. 3,200-3,600 m, Helambu, 1 ♀, 27.v.1988 (M. Suwa); Kutumsang - Magen Gotha, alt. 3,000-3,200 m, Helambu, 1 ♀, 28.v.1988 (M. Suwa). Janakpur: Shakpa - Chusa Kharka, alt. 3,000-3,400 m, Rolwaling Valley, 1 ♀, 13.viii.1983 (M. Suwa); Chusa Kharka, alt. 3,400 m, Rolwaling Valley, 1 ♀, 14.viii.1983 (M. Suwa); Chusa Kharka - Daldung La, alt. 3,400-3,800 m, Rolwaling Valley, 1 ♂, 2 ♀, 15.viii.1983 (M. Suwa); Supbu Kharka, alt. 3,300-3,700 m, Rolwaling Valley, 2 ♂, 1 ♀, 16.viii.1983 (M. Suwa). E. Nepal: Basantapur, alt. 2,300 m, 27°07'N 87°24'E, 1 ♂, 8.v.1972 (KU=Kyûshû Univeristy).

This species was originally described from 2 male specimens. On the basis of the specimens of both sexes at hand, a redescription is given as follows: -

♂. Wing-length 7.6-8.8 mm (7.1 mm in the smallest specimen). Body and appendages blackish in ground colour; hind tibia wholly blackish to partly yellow, especially on ventral side except near base and apex. Mesonotum tinged with brown or brownish yellow, rarely entirely pale grey, in pollinosity; some dark brownish pollinose markings visible, namely rather broad vitta along rows of *acr*, rather narrow and obscure vittae along rows of *dc* and broad patches on lateral declivities, the median vitta and the lateral patches rather sharply blackened in some lights, yet the submedian vittae obscurely so; scutellum largely dark brownish pollinose on dorsum. Abdomen somewhat paler than mesonotum in pollinosity; at high angle in caudal view with broad median vitta, broad fore-marginal bands and narrow hind-marginal bands, the brownish pollinosity on the markings weakly visible at this angle of view; at low angle in caudal view the median vitta becoming narrow and sharply blackened.

Head 1.3-1.4 times as high as long (Fig. 35); frons narrow, at most half as wide as anterior ocellus (Fig. 28); parafrontals contiguous to each other, with 5-9 (usually 6-8) *ori*;  $A_3$  2.4-2.7 times as long as wide; arista with the longest hairs 1.7-2.2 times as long as  $A_3$ -width; orbits at parafrontal angle slightly narrower to slightly wider than  $A_3$ ; epistoma situated a little behind tip of parafrontal angle; haustellar mentum a little shorter than  $A_2$  and  $A_3$  combined, and, when macerated, 1.8-2 times as long as wide (Fig. 46; 2 specimens macerated); occiput bare on upper plane.

Mesonotum with 3 pairs of *pre-acr*, distance between the setae of the 1st pair being at most as long as and usually a little shorter than that to *dc*-rows; *post-acr* usually in 5 pairs; mesopleura with a strong anterior *mpl*, and with 3-10 (mostly 5-9) fine setulae around *pstg*.

Abdomen conical, 1.7-1.9 times as long as wide; discal setae on 5th tergite differentiated from ground setulae, yet those on other tergites not; terminalia as in Suwa (1977), Figs. 5-8; 5th sternite\* similar to that of *nigrimana* in outline and setal distribution, with short and fine setulae scattered on inner half of each process; cercal plate a little more densely pilose than in *nigrimana*, though this character is not shown in Suwa (l.c.); praegonite with 2 short setae; postgonite with 1 long seta; epiphallallic lamella not dilated.

Legs slender, e.g.,  $f_3$  distinctly less high than maximum width of subcostal cell;  $f_2$  with some (4-7) *pv* in basal third or half;  $f_3$  with 7-10 *av*, and with 1 *pv* near base,

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\* Eight males of *takagii* were dissected for this study. Examination of them showed that the 5th sternite figured in the original description is comparatively narrow and somewhat differs from the usual type.

a few or some *pv* on median third or in basal two-thirds, and 1 *pv* near apex ;  $t_1$  with 1 *ad* and 1 or rarely 2 *pv* ;  $t_2$  with 1 *ad*, 1 *pd* and 2-4 *p-pv* (usually 1 *p* and 1-2 *pv*) ;  $t_3$  with 2-3 *av*, 4 or sometimes 3 *ad*, 3 *pd* and 2-5 *pv*. Wings with costal thorns small or minute.

♀. Wing-length 6.7-7.9 mm. Head reddish brown or orange yellow in ground colour near lunule and on cheeks. Fore coxa yellowish; mid and hind coxae brownish and partly or largely darkened; trochanters brownish;  $f_1$  yellowish or brownish on apical half ventrally and on anterior surface in a few cases, yet usually almost wholly blackish and only brownish at apex ventrally and at base anteriorly;  $f_2$  and  $f_3$  largely yellow;  $f_2$  blackish on apical third to two-fifths;  $f_3$  blackish on apical fourth;  $t_1$  dark brown to blackish (much paler and yellowish on median half in 1 specimen);  $t_2$  and  $t_3$  yellow, more or less darkened at base and apex.

Head about 1.15-1.2 times as high as long (Fig. 36); parafrontals with 3-5 *ori*; haustellar mentum, when macerated, 1.4-1.46 times as long as wide (Fig. 47; 2 specimens were macerated).

Abdomen with 1st sternite setulose on lateral sides only, number of the setulae variable from 1 to 8 on each side; ovipositor shortened (Figs. 57-58; 5 specimens dissected); 6th and 7th tergites each reduced into 2 small lateral sclerites; 6th segment with 6th and 7th spiracles on membrane near tergal sclerite, and with no setae discernible on or near the sclerite; 7th segment with or without 1-2 setae at lower-posterior corner of each tergal sclerite or on membrane just near the corner; 8th tergite membranized medially; the membranous area broad anteriorly and narrowing caudad, completely (in 4 of the 5 dissected specimens) or incompletely (in the remaining one) dividing the tergite into 2 plates; about 10 (8-12 in the present case) setae present along posterior margin of the tergite; 6th sternite about twice as long as wide, and much longer than cerci, with a few or some setae present along each lateral margin in posterior half; 7th sternite vestigial or completely suppressed, at most represented by a very small and very weakly sclerotized fragment, a pair of setae sometimes (in 2 specimens) present on membrane behind the fragment or on the corresponding part in the case without the fragment; 8th sternite represented by a pair of small sclerites, each with 0-1 seta.

Legs less slender than in male, with  $f_3$  as high as, or slightly less high than, maximum width of subcostal cell;  $f_2$  with 1-3 *av* near base and 3-5 *pv* in basal half;  $f_3$  with 4-6 *av*, 1 *pv* (practically *v*) near base and 1 *pv* near apex, rarely with 1 *pv* near basal third;  $t_3$  with 2 *av*, 2-4 (usually 3) *ad*, 2 or sometimes 3 *pd* and usually no *pv*. Wings with costal thorns a little shorter than, occasionally as long as, *h*-vein.

Distribution. Nepal.

Remarks. This species is ovoviviparous. Five females were dissected, and a large larva was seen in all the specimens. The mouth hooks and the posterior spiracles of the 2nd instar had already been formed near those of the 1st instar in 3 of the 5 larvae.

*H. takagii* may be closely related to *H. nigrimana* and *H. vagans*, being similar in genital structures in both sexes. The latter two species are, however, different from *takagii* as follows: - Much paler in colouration of body pollinosity and legs; wings with costal thorns stronger; legs more robust,  $f_3$  about as high as and distinctly higher than maximum width of subcostal cell in male and female respectively; in male, abdominal tergites with marginal setae stronger, and cercal

plate comparatively short.

#### 4. *Hylemya detracta* (Walker, 1852)

(Figs. 29, 37–38, 48–50, 59–60)

*Hylemya detracta*: Ackland, 1967: 123; Suwa, 1977: 19; Ackland and Pont, 1977: 443; Fan et al., 1988: 125.

Material examined. Bagmati: Siwapuri (=Sheopuri), alt. 2,600 m, Kathmandu Valley, 43♂, 2♀, 27–30.viii.1975 (S. Takagi); ditto, alt. 2,500–2,700 m, 5♂, 12♀, 19–20.vii.1983 (M. Suwa); Dunche – Syabru, alt. 1,800–2,300 m, Gosainkund Lekh, 30♂, 13.v.1988 (M. Suwa); Syabru – Lama Hotel, alt. 1,700–2,500 m, Langtang Valley, 1♂, 14.v.1988 (M. Suwa); ditto, alt. 1,800–2,500 m, 4♀, 20.ix.1983 (M. Suwa); Bamboo Lodge – Lama Hotel, alt. 2,000–2,500 m, Langtang Valley, 1♀, 21.v.1988 (M. Suwa); Lama Hotel – Ghora Tabela, alt. 2,500–3,000 m, 2♂, 1♀, 12.ix.1983 (M. Suwa), and 1♂, 21.v.1988 (M. Suwa); Syabru – Sing Gompa, alt. 2,700–3,000 m, Gosainkund Lekh, 1♀, 21.ix.1983 (M. Suwa); Chipling – Kutumsang, alt. 2,000–2,500 m, Helambu, 1♀, 28.ix.1983 (M. Suwa); Pati Bhanjyang – Mulkharka, alt. 1,700–2,300 m, Helambu, 1♀, 29.ix.1983 (M. Suwa). Gandaki: Latamarang, alt. 2,400–2,500 m, Marsyandi Valley, 1♀, 21.vi.1988 (M. Suwa). E. Nepal: Basantapur, alt. 2,300 m, 1♂, 7.v.1972 (KU); Chouki, alt. 2,700 m, 27°12'N 87°28'E, 3♂, 3♀, 16.vii.1972 (J. Emoto). C. Nepal: Dobang Kharka, alt. 2,400 m, 28°35'N 83°24'E, 1♀, 15.x.1971 (A. Nakanishi); Lipshisa Kharka, alt. 1,900 m, 28°35'N 83°23'E, 1♂, 30.x.1971 (A. Nakanishi).

♂. Wing-length 6.8–8.7 mm. Body blackish in ground colour except on 5th sternite and hypopygium. Antennae blackish, with A<sub>2</sub> often slightly brownish at dorsal apex; palpi blackish, often a little brownish basally. Abdomen with median vitta narrower than f<sub>3</sub>-height; processes of 5th sternite, epandrium and caudal half of pregenital sclerite yellowish, sometimes brown or dark brown. Legs largely yellow; fore coxa yellow; mid and hind coxae brownish yellow to dark brown; trochanters yellow to brownish yellow; f<sub>1</sub> variously darkened from mainly yellow with a dark streak on posterodorsal surface to largely darkened with a yellow area on anteroventral to posteroventral surface in apical half; f<sub>2</sub> and f<sub>3</sub> yellow, more or less darkened near apex dorsally; tibiae yellow.

Head 1.4–1.5 times as high as long (Fig. 37); frons very narrow, at most half as wide as anterior ocellus (Fig. 29); interfrontalia with *if* fine and often very minute; parafrontals contiguous, with 4–6 *ori*; A<sub>3</sub> 2.3–2.9 times as long as wide; arista with the longest hairs longer than twice the A<sub>3</sub>-width; orbits at parafrontal angle as wide as or slightly narrower than A<sub>3</sub>; epistoma reaching about as far as tip of parafrontal angle; haustellar mentum about as long as A<sub>2</sub> and A<sub>3</sub> combined, and, when macerated (2 specimens macerated), 1.9–2 times as long as wide (Figs. 48–49).

Mesonotum with 1 pair of *pre-acr* and 2 or sometimes 3 pairs of *post-acr*; mesopleura with a strong anterior *mpl*, and with 0–4 (usually none) associated setulae around *pslg*.

Abdominal 4th tergite with discal setae variable in strength, sometimes hardly but sometimes well developed; terminalia as in Suwa (1977), Figs. 1–4; cercal plate and surstyli with setae longer and denser than in allied species; praegonite with 2 long setae; postgonite with 1 long seta; epiphallic lamella not dilated.



Mid femur with 1-3 (usually 2) *pv* near base ;  $f_3$  on median third with or without 1 or a few *pv* ;  $t_2$  with 1 *ad*, 1 *pd*, 1 *p* and 1 or sometimes 2 *pv* ;  $t_3$  with 2-3 (rarely 4) *av*, 3 or sometimes 4 *ad*, 2 *pd* and a few or some *pv*. Wings with costal thorns distinct though shorter than *h*-vein.

♀. Wing-length 5.8-7.8 mm. Head brownish or yellowish in ground colour at places : - Interfrontalia reddish brown or orange yellow near lunule ; parafacials sometimes partly brownish ; cheeks often largely brownish yellow. Fore femur largely yellow and with a dark streak posterodorsally, sometimes less darkened.

Head 1.2-1.3 times as high as long (Fig. 38) ; arista with the longest hairs sometimes slightly shorter than twice the  $A_3$ -width ; parafrontals with 3-4 (sometimes 2 on one side) *ori* ; haustellar mentum, when macerated, 1.6-1.7 times as long as wide (Fig. 50 ; 2 specimens macerated).

Abdomen with 1st sternite setulose laterally, sometimes 1 or a few setulae visible also on median area of the sternite ; ovipositor shortened (Figs. 59-60 ; 4 specimens dissected) ; 6th and 7th tergites each reduced into 2 small lateral sclerites ; 6th segment with 6th and 7th spiracles on membrane, the latter spiracle almost touching the lower margin of tergal sclerite ; 1-3 setae present on membrane just behind 7th spiracle ; 7th segment with 0-2 setae at lower-posterior corner of each tergal sclerite or on membrane just near the corner ; 8th tergite broadly membranized anteromedially ; the membranization restricted on anterior half, or narrowly continuing to divide the tergite throughout ; some (5-10) setae present along posterior margin of the tergite ; 6th sternite reduced and distinctly or even much shorter than cerci (less reduced and distinctly longer than cerci in 1 example), with 3-5 setae present along each lateral margin ; 7th sternite smaller than the 6th and much shorter than cerci, with 1-3 setae along each lateral margin ; 8th sternite represented by 2 small sclerites, each with 1 seta (in 3 examples) or none (1 example).

Mid femur with 1-2 *av* and 2 *pv* near base ;  $t_3$  with 2 (rarely 3) *av*, 2-3 (rarely 4) *ad*, 2 *pd* and no *pv*. Wings with costal thorns as long as or a little longer than *h*-vein.

Distribution. Nepal ; N. India ; China (Szechwan).

Remarks. This is an ovoviviparous species. Among the 4 females dissected 2 specimens were observed to contain a large larva (1st instar). This species is similar to *H. longirostris* in the mesonotum with only 1 pair of *pre-acr*, but is much different from the latter in other characters. The genital structures and other features clearly indicate a close relationship to *nigrimana* and allies.

##### 5. *Hylemya femoralis* Stein, 1915

(Figs. 15-22, 30, 39-40, 51-52, 61)

*Hylemya femoralis* : Ackland and Pont, 1977 : 443 ; Suwa, 1983 : 2 ; Fan et al., 1988 : 123.

*Hylemya* sp. A : Suwa, 1981 : 23.

Material examined. Bagmati : Mure, alt. 2,500 m, nr. Charikot, 3♂, 1♀, 7.viii.1983 (M. Suwa). E. Nepal : Basantapur, alt. 2,300 m, 2♂, 10♀, 27.iv-10.v.1972 (KU) ; ditto, 1♂, 8♀, 24.iv-26.vii.1972 (J. Emoto, H. Makihara, H. Shima & Y. Nishida) ; Tank - Penmaten, alt. 1,900-2,600 m, 1♂, 29.vi.1972 (H. Makihara).

♂. Wing-length 5.1-5.7 mm. Body blackish in ground colour ; legs partly

yellow. Parafacials and cheeks silvery or whitish grey in pollinosity, hardly tinged with yellow or brown. Mesonotum slightly to rather distinctly tinged with brown or brownish yellow in pollinosity, with brownish pollinose markings visible along rows of *acr*, around bases of setae, and at places on lateral declivities; in caudal view some dark markings discernible, namely rather narrow median vitta, obscure sub-lateral vittae and lateral patches. Abdomen hardly to rather distinctly tinged with brownish yellow in pollinosity; in caudal view with sharp and narrow black median vitta, and with rather broad and brownish pollinose fore-marginal bands; brownish pollinosity discernible on and near the median vitta; 5th sternite with processes more or less brownish. Femora blackish, only a little brownish at apex;  $t_1$  brownish yellow to brown, darker apically;  $t_2$  and  $t_3$  yellowish, usually a little darkened apically. Wings with a brownish yellow tinge; calyptrae pale, slightly tinged with brownish yellow.

Head 1.3-1.36 times as high as long (Fig. 39); frons as wide as or slightly wider than half diameter of anterior ocellus (Fig. 30); parafrontals contiguous, with 4-6 *ori*; interfrontalia with *if* distinct;  $A_3$  2.1-2.4 times as long as wide; arista with the longest hairs slightly shorter to a little longer than twice the  $A_3$ -width; orbits at parafrontal angle slightly narrower than  $A_3$ ; epistoma situated a little behind tip of parafrontal angle; haustellar mentum rather distinctly shorter than  $A_2$  and  $A_3$  combined, and, when macerated (2 specimens macerated), 1.4-1.45 times as long as wide (Fig. 51).

Mesonotum usually with 2 pairs of *pre-acr*, sometimes 1 additional seta discernible in one or each of the rows; mesopleura with a strong anterior *mpl*, and with 1 or a few (5 on one body-side in 1 specimen) fine setulae around *pslg*.

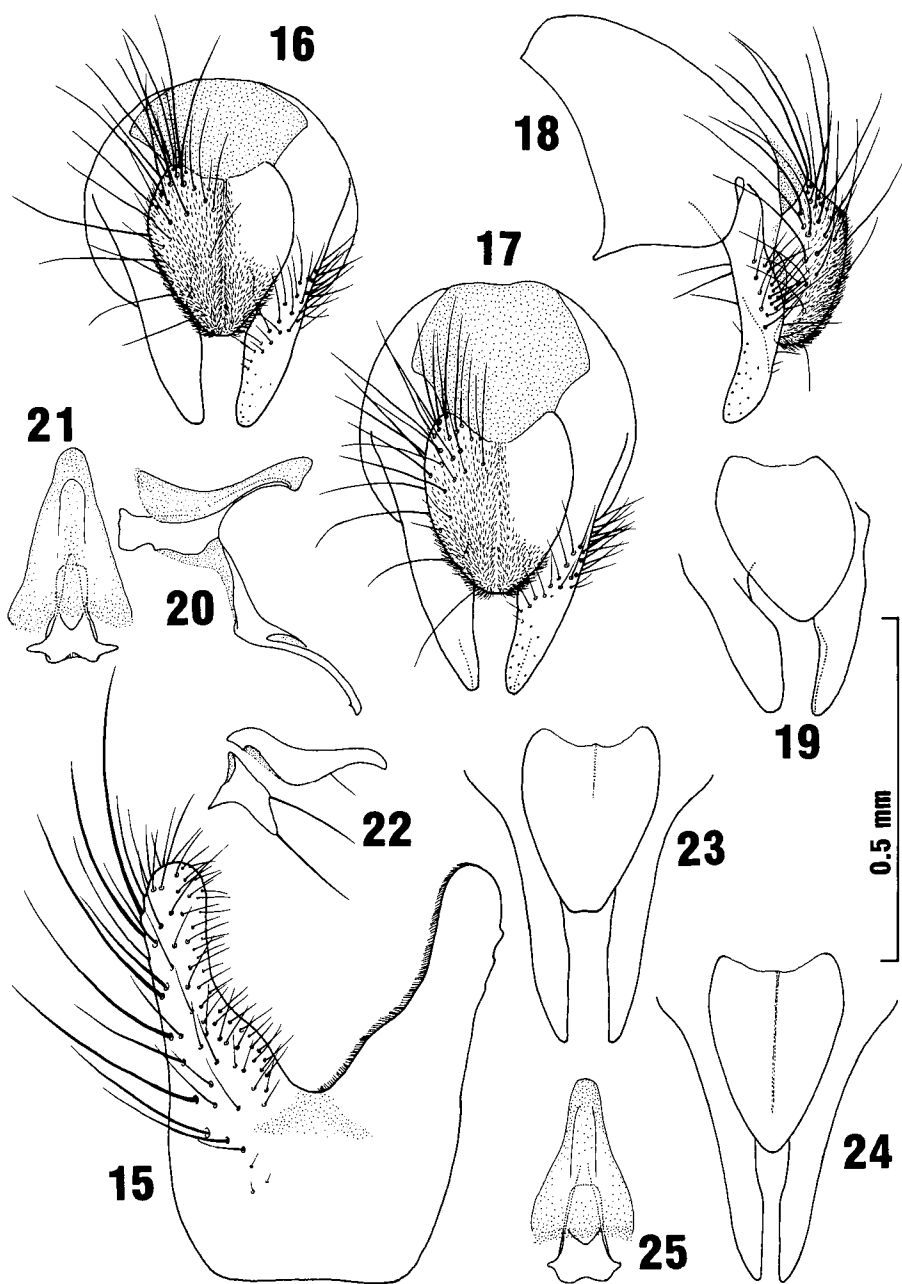
Abdomen with terminalia as in Figs. 15-22; 5th sternite with inner margin distinctly sinuate; surstyli comparatively short, with excess part beyond cercal plate much shorter than the plate; praegonite with 2 long setae; postgonite with 1 short seta; epiphallic lamella dilated.

Mid femur with 2-4 *pv* in basal third or half and no *a* near apex;  $f_3$  in median third with 1-2 *pv*;  $t_3$  with 2-3 (usually 2) *av*, 3 (4 in 1 specimen) *ad*, 2 *pd* and 1-5 *pv*. Wings with costal thorns as long as or a little longer than *h*-vein.

♀. Wing-length 4.8-5.6 mm. Interfrontalia yellowish on lower half; parafacials partly brown to largely brownish yellow; cheeks brown to brownish yellow. Fore coxa yellow; mid and hind coxae brownish yellow to dark brown; trochanters yellow to brown;  $f_1$  largely darkened, paler on anterior surface, and more or less yellowish near apex especially ventrally;  $f_2$  and  $f_3$  and all tibiae wholly yellowish.

Head 1.2-1.3 times as high as long (Fig. 40); parafrontals with 2 or sometimes 3 *ori*; haustellar mentum usually wider than in male, 1.3-1.4 times as long as wide when macerated (Fig. 52; 6 specimens macerated). Mesonotum often with 1 additional *pre-acr* in one or rarely each of the 2 rows.

Abdomen with 1st sternite setulose on whole width, sometimes narrowly or rarely broadly bare medially; ovipositor shortened (Fig. 61; 6 specimens dissected); 6th and 7th tergites each divided into 2 lateral sclerites, which are much less reduced in size than those of other species with shortened ovipositor; 6th segment with 6th and 7th spiracles on tergal sclerite (the former spiracle is situated on the membrane just near the lower-anterior corner of the sclerite in 1 example), and with some (5-7) setae along posterior margin of the sclerite; each sclerite of 7th tergite with some



Figs. 15-22. *Hylemya femoralis* Stein, ♂. 15, 5th sternite; 16-17, hypopygium, dorsal view; 18, ditto, lateral view; 19, ditto, dorsolateral view; 20, basiphallus and distiphallus; 21, basiphallus, dorsal view; 22, praegonite and postgonite. Tank - Penmaten (15-16, 18-22) and Basantapur (17).

Figs. 23-25. *Hylemya probilis* Ackland, ♂. 23-24, hypopygium, dorsal view; 25, basiphallus, dorsal view. Basantapur (23) and Basantapur - Chouki (24-25).

(4-7) setae along posterior margin; 8th tergite a little membranized posteromedially, yet not anteriorly, with some (6-9) setae present along posterior margin; 6th sternite as long as or longer than cerci, yet much reduced in width on unsetose anterior part, with 2-4 setae along each lateral margin of posterior part; 7th sternite smaller than the 6th and also much reduced in width anteriorly, with 1-4 setae present along each lateral margin posteriorly; 8th sternite represented by a pair of small sclerites, each with 1-3 setae.

Mid femur with 1-3 (usually 1-2) *av* in basal fourth, and 2-4 (usually 2-3) *pv* in basal half; *f*<sub>3</sub> with no *pv* discernible except near base and apex. Wings with costal thorns strong, longer than *h*-vein.

Distribution. Taiwan; Nepal; N. India; China (Yunnan).

Remarks. The present form is ovoviviparous. A large larva was observed in 3 of 6 dissected females. The mouth hooks and the posterior spiracles of the 2nd instar were seen near those of the 1st in 1 of the 3 larvae.

This species is quite characteristic in the ovoid and densely pilose cercal plate, the short surstyli and the 5th sternite with distinctly sinuate inner margin in the male terminalia, and in the less reduced 6th and 7th tergal sclerites with setae on whole length of posterior margins in the female terminalia. By having these characters the present Nepalese form may correctly be referred to *femoralis* originally described from Taiwan. The Taiwanese form is, however, different in the following characters: - Much darker in colouration of body pollinosity and of legs; a little larger in size, wing-length up to 6.9 mm in male, and to 6.5 mm in female (after Suwa, 1983); *f*<sub>2</sub> with 1 distinct *a* near apex in male as well as in female. *H. femoralis* has recently been recorded from Yunnan, China, by Fan et al. (1988). According to them, the male of the Chinese form is 6-8 mm in body-length and has yellow tibiae with slightly darkened apex, thus agreeing with the Nepalese form in colouration of the legs, yet differing in the larger body-size. The female specimen from Uttar Pradesh, India, recorded under *Hylemya* sp. A by Suwa (1981), has been found to be referable to *femoralis* by examination of its ovipositor.

## 6. *Hylemya probilis* Ackland, 1967

(Figs. 23-25, 31, 41-42, 53-54, 62)

*Hylemya probilis* Ackland, 1967: 121; Suwa, 1977: 22; Ackland and Pont, 1977: 444; Fan et al., 1988: 129.

*Hylemya* sp. B: Suwa, 1981: 23.

Material examined. Bagmati: Siwapuri, alt. 2,500-2,700 m, Kathmandu Valley, 1♀, 28.viii.1975 (S. Takagi), and 30♂, 10♀, 19-20.vii.1983 (M. Suwa); Phulchoki, alt. 2,500-2,700 m, Kathmandu Valley, 2♂, 2♀, 27.vii.1983 (M. Suwa); Dunche - Syabru, alt. 1,800-2,300 m, Gosainkund Lekh, 1♂, 13.v.1988 (M. Suwa); Syabru - Sing Gompa, alt. 2,700-3,200 m, Gosainkund Lekh, 2♀, 21.ix.1983 (M. Suwa); Sing Gompa, alt. 3,200 m, Gosainkund Lekh, 2♂, 4♀, 22.ix.1983 (M. Suwa); Gosainkund, alt. 4,000-4,300 m, 1♀, 23-25.ix.1983 (M. Suwa); Dada Kharka - Ghopte, alt. 3,300-3,600 m, Gosainkund Lekh, 6♂, 5♀, 26.ix.1983 (M. Suwa); Ghopte - Tare Pati, alt. 3,400-3,600 m, Gosainkund Lekh, 1♀, 26.v.1988 (M. Suwa); Magen Gotha - Tare Pati, alt. 3,200-3,600 m, Helambu, 9♀, 27.v.1988 (M. Suwa); Kutumsang - Magen

Gotha, alt. 2,500–3,000 m, 3♂, 1♀, 28.v.1988 (M. Suwa); Kutumsang, alt. 2,400–2,500 m, Helambu, 1♂, 27.ix.1983 (M. Suwa); Chipling - Kutumsang, alt. 2,000–2,500 m, Helambu, 2♀, 28.ix.1983 (M. Suwa); Ghora Tabela, alt. 3,000 m, Langtang Valley, 1♀, 29.ix.1975 (S. Takagi); Ghora Tabela - Langtang, alt. 3,000–3,400 m, Langtang Valley, 1♂, 19.ix.1983 (M. Suwa). Gandaki: Gorapani, 1♂, 2.v.1968 (T. Kumata). Janakpur: Shakpa - Chusa Kharka, alt. 3,000–3,400 m, Rolwaling Valley, 6♂, 5♀, 13.viii.1983 (M. Suwa); Chusa Kharka, alt. 3,400 m, Rolwaling Valley, 9♂, 7♀, 14.viii.1983 (M. Suwa); Chusa Kharka - Daldung La, alt. 3,400–3,800 m, Rolwaling Valley, 1♂, 1♀, 15.viii.1983 (M. Suwa); Supbu Kharka, alt. 3,300–3,700 m, Rolwaling Valley, 2♀, 16.viii.1983 (M. Suwa); Beding, alt. 3,300–3,700 m, Rolwaling Valley, 1♂, 16.viii.1983 (M. Suwa); Dongo Kharka - Beding, alt. 3,000–3,300 m, Rolwaling Valley, 1♀, 22–23.viii.1983 (M. Suwa). E. Nepal: Basantapur, alt. 2,300 m, 7♂, 7♀, 28.iv–10.v.1972 (KU), and 4♂, 4♀, 25.iv–5.v.1972 (H. Shima, Y. Nishida & J. Emoto); Basantapur - Chouki, alt. 2,300–2,700 m, 2♂, 3♀, 21–24.vi.1972 (H. Makihara), and 1♀, 24.vii.1972 (H. Shima); Basantapur - Jilikinpthi, alt. 2,300–1,850 m, 2♀, 12.v.1972 (J. Emoto); Hile - Basantapur, alt. 2,100–2,300 m, 1♀, 24.iv.1972 (Y. Nishida); Gupa Pokari - Gurza, alt. 2,900–2,100 m, 1♂, 23.vi.1972 (H. Makihara); Papun - Thurukpa, alt. 2,100–2,600 m, 1♂, 11.vi.1972 (H. Shima); Thurukpa - Topke Gola, alt. 2,600–3,700 m, 1♀, 12.vi.1972 (Y. Nishida); Tanga La - Topke Gola, alt. 4,700–3,700 m, 5♀, 7.vii.1972 (J. Emoto); Topke Gola, alt. 3,700 m, 2♂, 8.vii.1972 (H. Shima), and 29♀, 8.vii.1972 (J. Emoto); Thudam, alt. 3,500 m, 27°44'N 87°32'E, 11♀, 24.vi–9.vii.1972 (KU), and 1♀, 24.vi.1972 (H. Shima); NE of Thudam, alt. 4,000 m, 1♀, 25.vi.1972 (Y. Nishida).

This species has been known only from the male. A lot of specimens of both sexes are now available. A redescription based on them is given as follows: -

♂. Wing-length 5.3–6.6 mm. Body including appendages blackish in ground colour. Parafacials and cheeks hardly or slightly tinged with brown or brownish yellow. Mesonotum pale grey or brownish grey pollinose, with or without a brownish yellow tinge; brownish pollinose markings visible along rows of *acr*, around bases of setae, and on lateral declivities from *ph* to 1st *ia*. Abdomen pale grey or pale brownish grey pollinose, often with a brownish yellow tinge; in caudal view with rather narrow or moderate black median vitta, and also with rather narrow or moderate and brownish pollinose fore-marginal bands; 5th sternite with processes dark brown or blackish, not pale brown. Legs blackish; trochanters dark brown.

Head usually about 1.3 times as high as long (Fig. 41); frons narrower than anterior ocellus, usually about half as wide as the ocellus (Fig. 31); parafrontals contiguous, with 4–7 *ori*;  $A_3$  slightly to distinctly longer than twice the width; arista with the longest hairs slightly to distinctly shorter than twice the  $A_3$ -width; orbits at parafrontal angle as wide as or a little narrower than  $A_3$ ; epistoma projecting as far as, or slightly beyond, tip of parafrontal angle; haustellar mentum a little longer than  $A_2$  and  $A_3$  combined, and, when macerated (2 specimens macerated), 2–2.18 times as long as wide (Fig. 53).

Mesonotum almost always with 2 pairs of *pre-acr* (1 additional seta present on one of the 2 rows in a few cases); mesopleura with a strong or distinct anterior *mpl*, and usually with 1 or a few fine setulae around *pstg*.

Abdomen with terminalia as in Suwa (1977), Figs. 9–12, and the present paper, Figs. 23–25; 5th sternite with processes shorter than basal plate and not so sinuate

as in *femoralis* on inner margin; cercal plate comparatively long and densely pilose; surstyli narrow in dorsal view, with excess part beyond cercal plate distinctly shorter than the plate; praegonite with 2 rather long setae; postgonite with 1 short seta; epiphallic lamella dilated.

Mid femur with 2-4 (usually 2) *pv* in basal fourth or third, and with no *a* near apex;  $f_3$  with some (usually 4-5) *pv* in basal half or two-thirds, and 1 *pv* near apex;  $t_3$  usually with 2 *av*, 3 *ad*, 2 *pd* and a few or some *pv*. Wings with costal thorns as long as or a little shorter than *h*-vein.

♀. Wing-length 4.8-6.2 mm. Interfrontalia orange yellow near lunule, with pollinosity whitish there and brown on the upper part; parafrontals more or less tinged with brown or brownish yellow in pollinosity, darker along inner margin; parafacials and cheeks blackish in ground colour, rarely brownish except in teneral specimens, and with a slight or rather distinct yellow or brownish yellow tinge in pollinosity. Legs blackish as in male.

Head usually about 1.2 times as high as long (Fig. 42); 2-5 (usually 3) *ori*; haustellar mentum as long as or a little longer than  $A_2$  and  $A_3$  combined, and 1.7-1.8 times as long as wide when macerated (Fig. 54; 8 specimens macerated).

Abdominal 1st sternite with a few or some setulae on each lateral area and bare on median part in various width, occasionally with some setulae scattered on whole width; ovipositor shortened (Fig. 62; 8 specimens dissected); 6th and 7th tergites each reduced into 2 small lateral sclerites; 6th segment with 6th and 7th spiracles on membrane near lower margin of tergal sclerite (the left sclerite is somewhat enlarged to reach both spiracles in 1 specimen), and with 0-2 (usually 1) setae on membrane below 7th spiracle; 7th segment with 1-2 (usually 1) setae present at lower-posterior corner of each tergal sclerite or on membrane just near the corner; 8th tergite widely divided into 2 plates and with 2-3 setae along posterior margin of each plate (only 1 seta discernible on one of the 2 plates in 2 examples); 6th sternite much longer than cerci, with 2-4 (usually 3) setae present along each lateral margin in posterior half; 7th sternite somewhat smaller than the 6th, with 2 or usually 3 setae along each lateral margin in posterior half; these sternites more or less reduced in width on unisetose anterior part in a few examples; 8th sternite represented by a pair of small sclerites, each with 1-2 setae (none in 1 example).

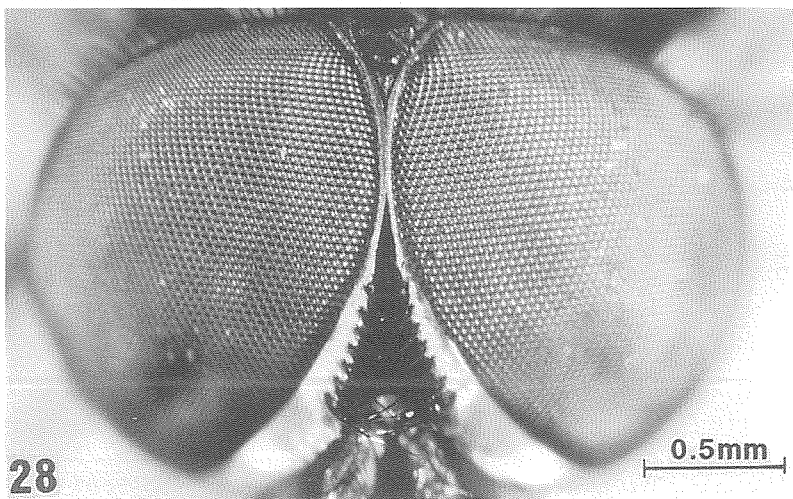
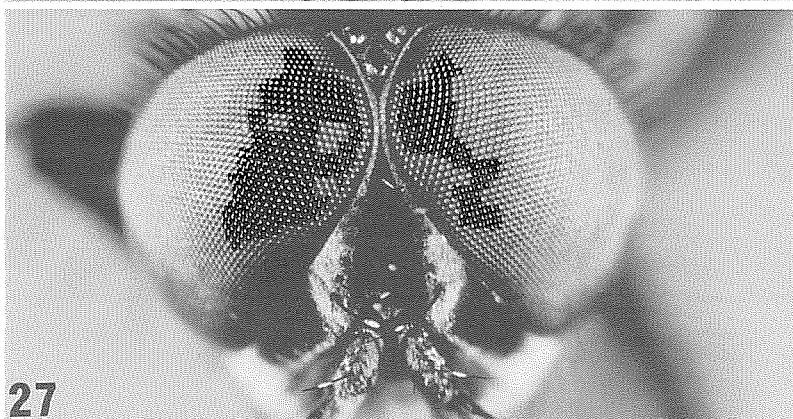
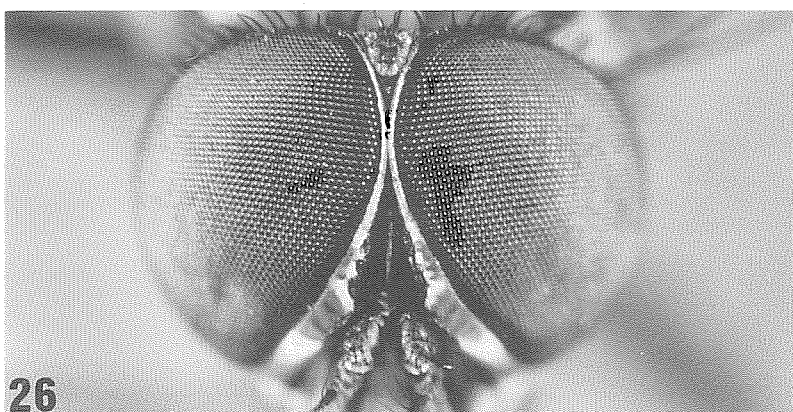
Mid femur near base with 1 *av* and usually 2 *pv*;  $f_3$  with 1 *pv* near base and with no more *pv* discernible except a preapical one;  $t_3$  with no *pv*, at most 1-2 weak ones discernible in some cases. Wings with costal thorns well developed, distinctly longer than *h*-vein.

Distribution. Nepal; N. India; China (Kansu).

Remarks. This species is ovoviviparous. Eight females were dissected and a large larva (1st instar) was seen in 4 of them. *H. probilis* resembles *H. femoralis* except in the genital structures and the colouration of the legs. In identifying dried specimens, it is often difficult to use the degree of projection of the epistoma and the size of the haustellar mentum owing to shrunken or deep-set condition of the parts. The colouration of the legs is, however, stable and may be useful at least in the Nepalese forms. One female specimen of *Hylemya* was recorded from Uttar Pradesh, India, as *Hylemya* sp. B by Suwa (1981). Having examined its ovipositor, I have no doubt that the specimen is to be identified with *probilis*.

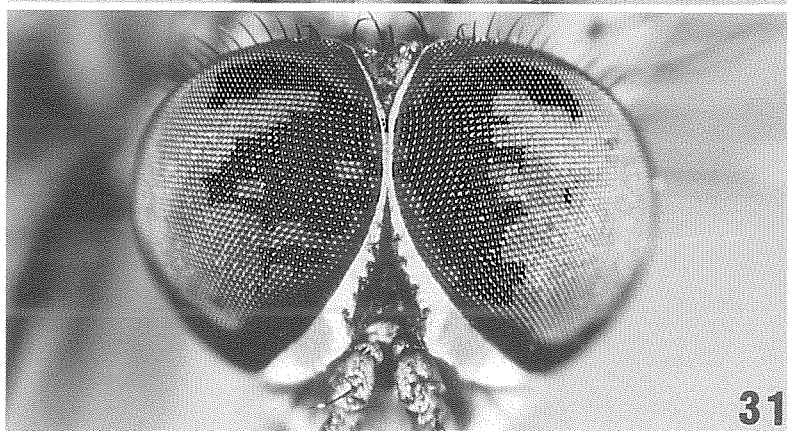
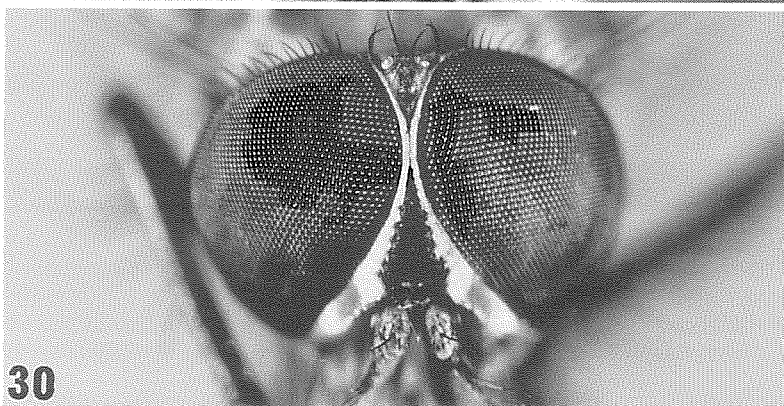
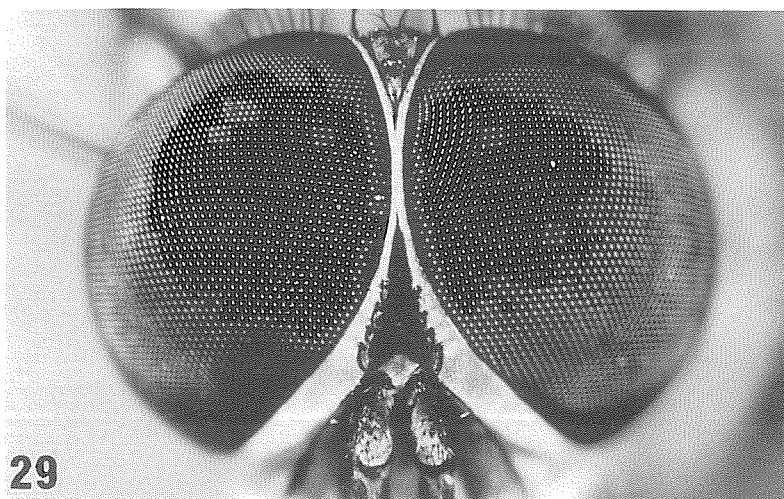
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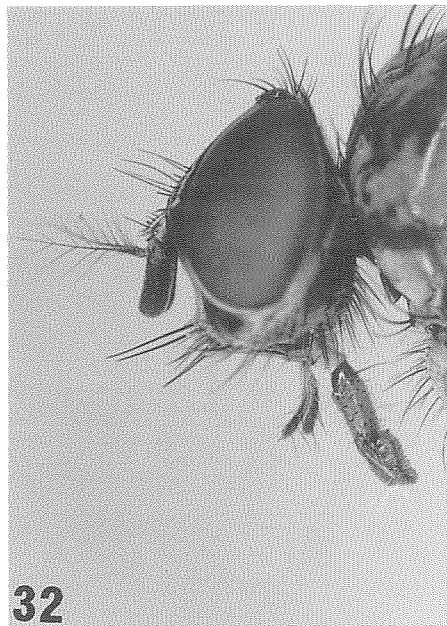


Figs. 26-28. Head in frontal view of *Hylemya* spp., ♂. 26, *flavicruralis* sp. nov., holotype from Siwapuri; 27, *longirostris* sp. nov., paratype from Dongo Kharka - Beding; 28, *takagii* Suwa, Syabru - Sing Gampa. Magnification same for the succeeding figures of head in frontal view.

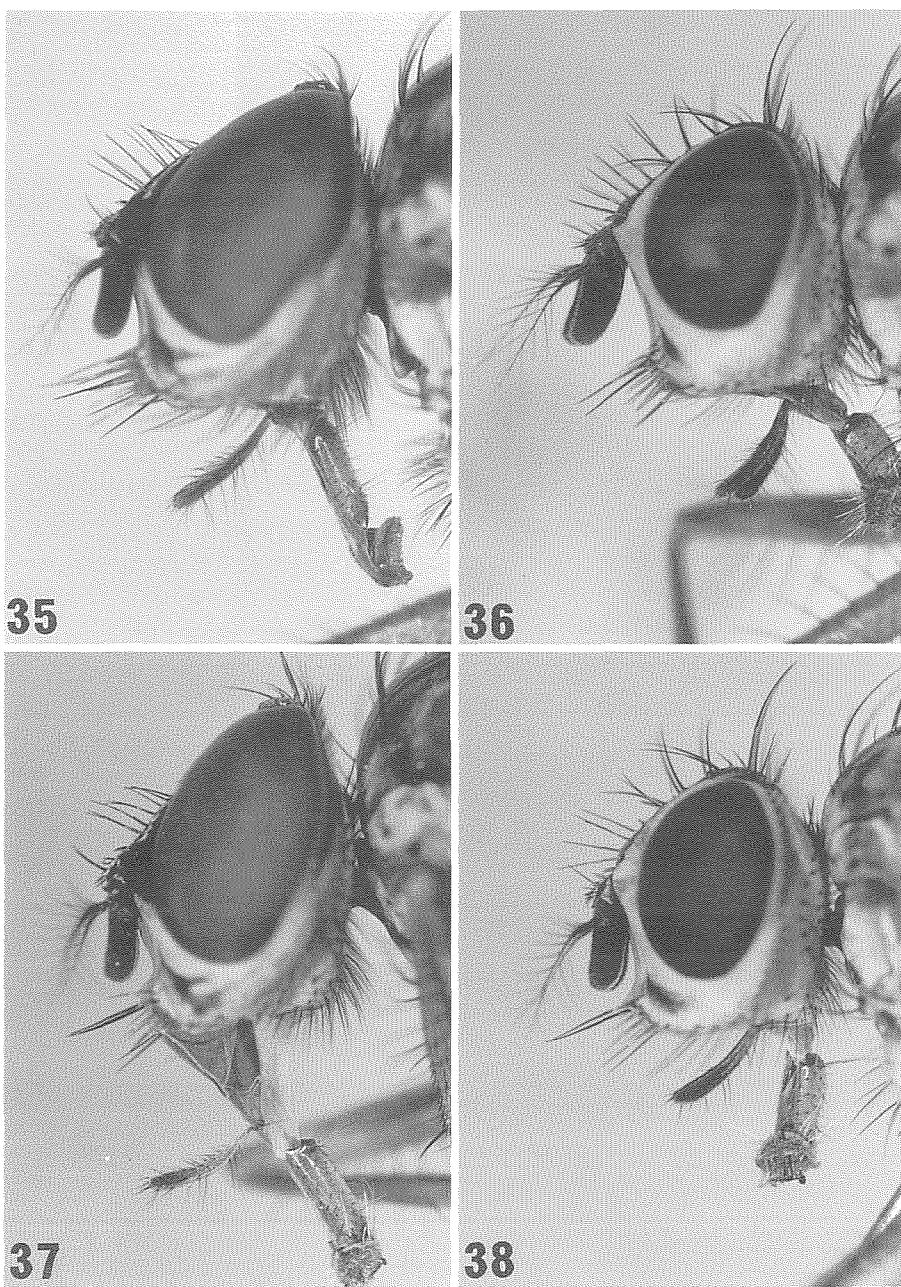




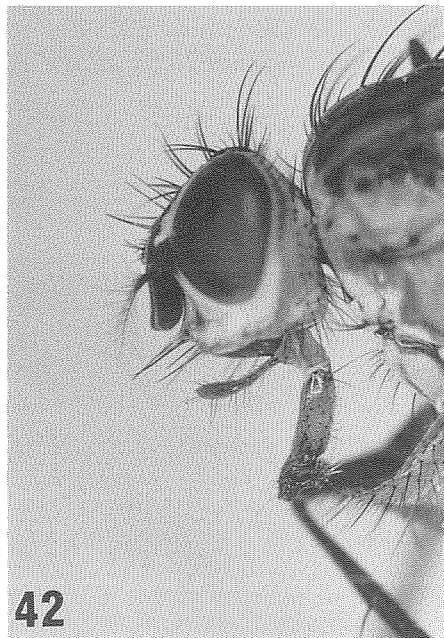
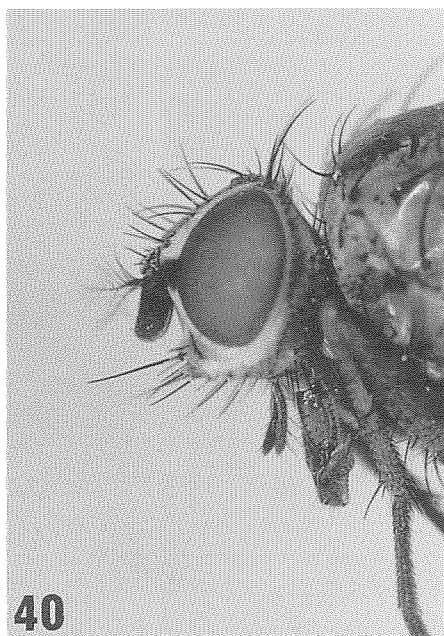
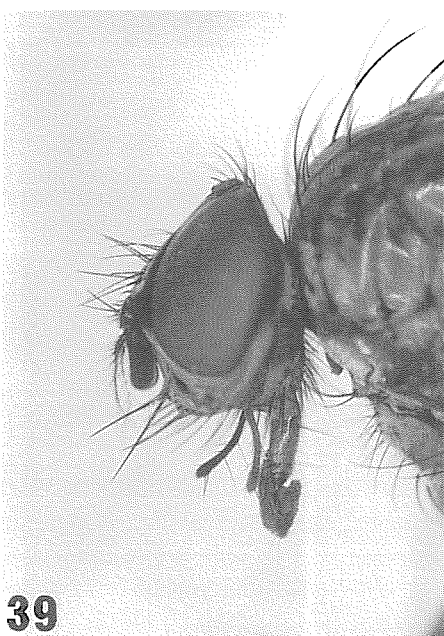
Figs. 29-31. Head in frontal view of *Hylemya* spp., ♂. 29, *detracta* (Walker), Dunche - Syabru ; 30, *femoralis* Stein, Mure nr. Charikot ; 31, *probilis* Ackland, Kutumsang.



Figs. 32-34. Head in lateral view of *Hylemya* spp. 32, *flavicruralis* sp. nov., ♂, holotype from Siwapuri; 33, *longirostris* sp. nov., ♂, holotype from Dongo Kharka - Beding; 34, ditto, ♀, paratype from Dongo Kharka - Beding. Magnification same for the succeeding figures of head in lateral view.

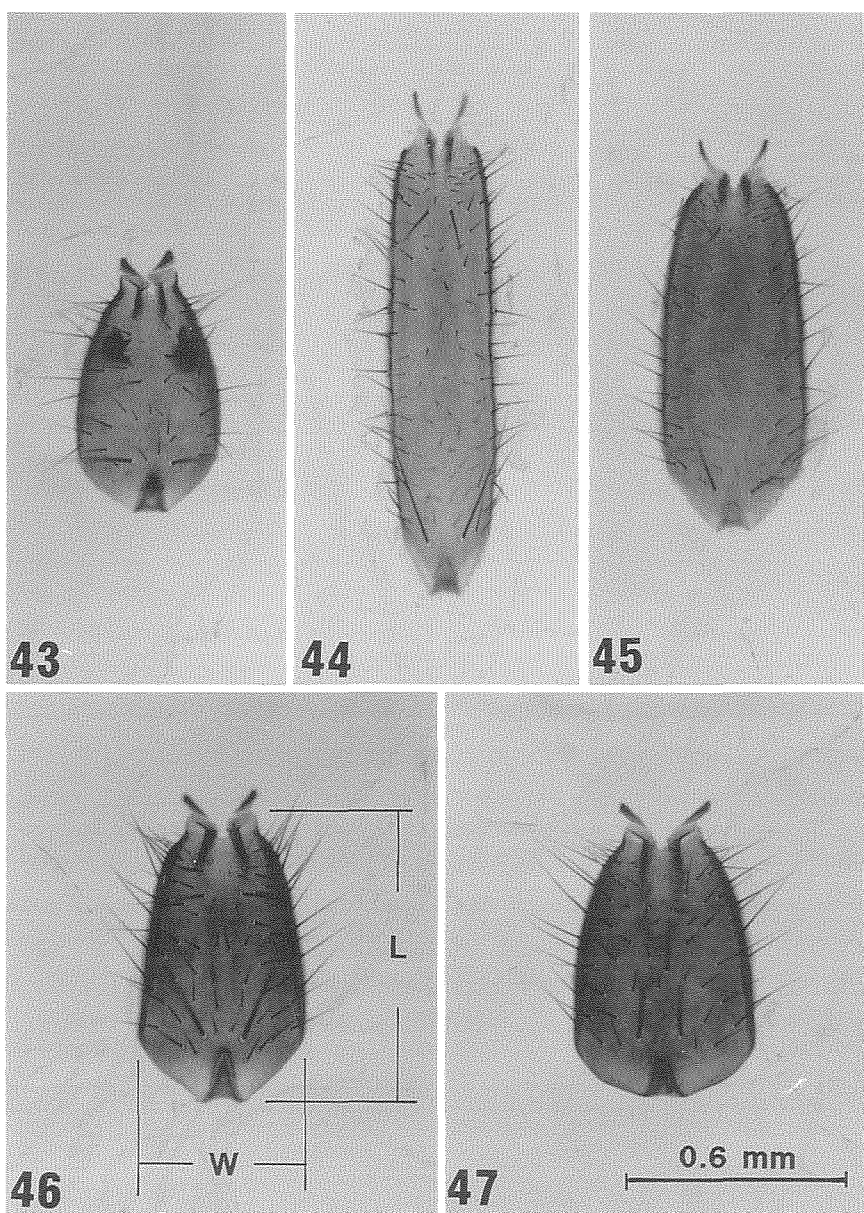


Figs. 35-38. Head in lateral view of *Hylemya* spp. 35, *takagii* Suwa, ♂, Dada Kharka - Ghopte; 36, ditto, ♀, Syabru - Sing Gompa; 37, *detracta* (Walker), ♂, Siwapuri; 38, ditto, ♀, Syabru - Sing Gompa.

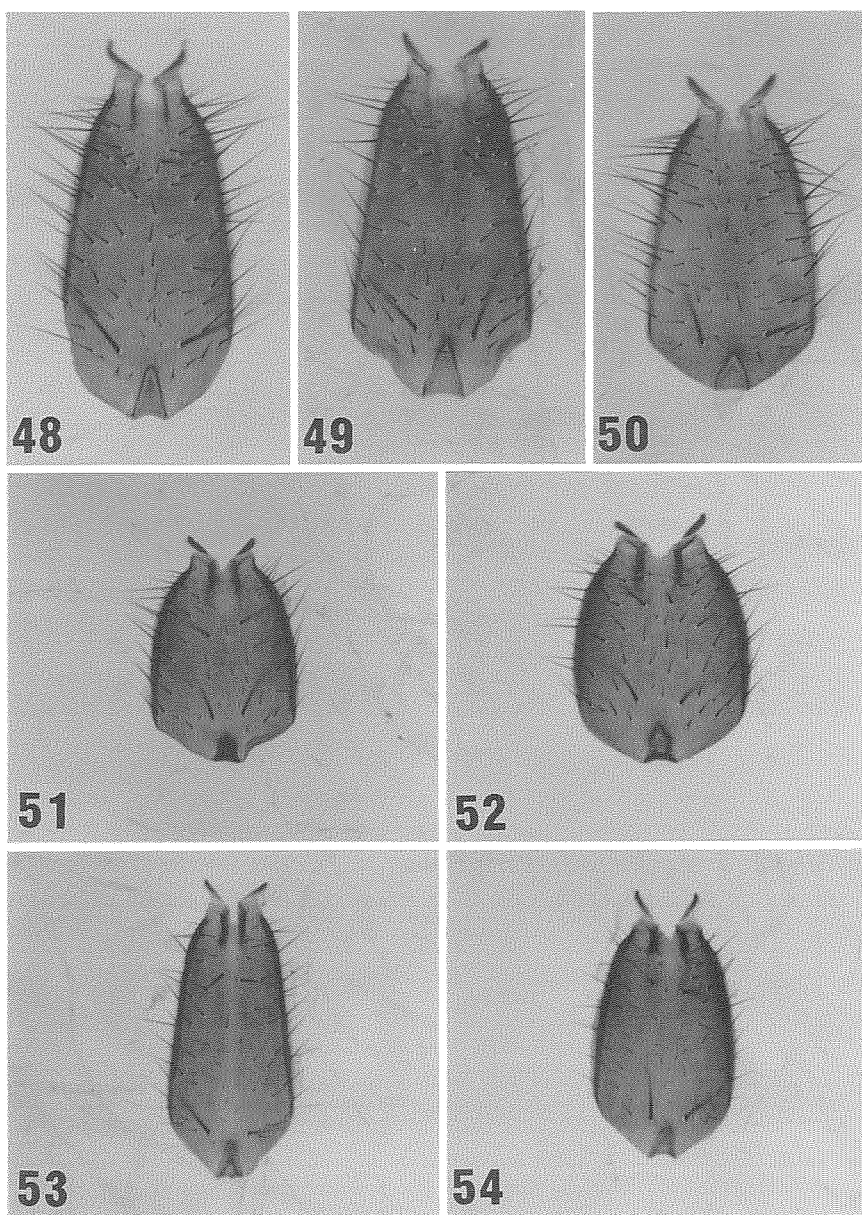


Figs. 39-42. Head in lateral view of *Hylemya* spp. 39, *femoralis* Stein, ♂, Basantapur ; 40, ditto, ♀, Basantapur ; 41, *probilis* Ackland, ♂, Shakpa - Chusa Kharka ; 42, ditto, ♀, Shakpa - Chusa Kharka.

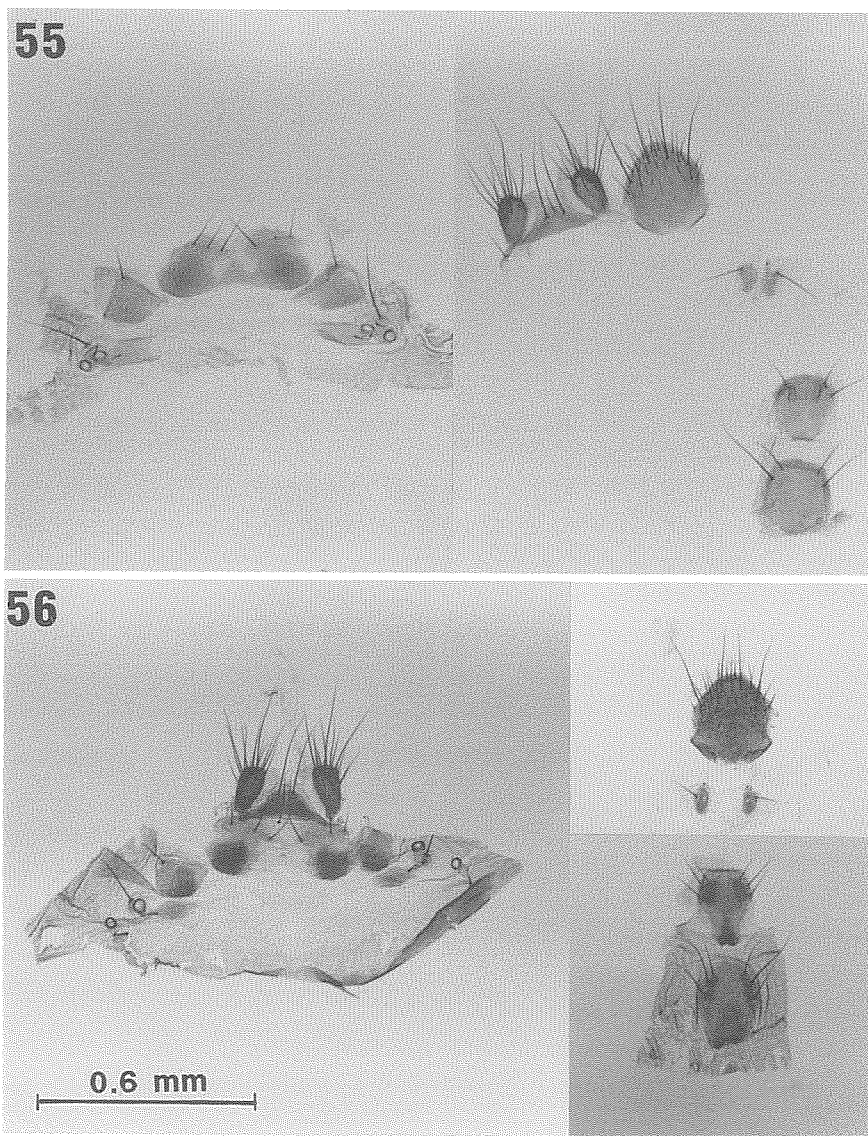




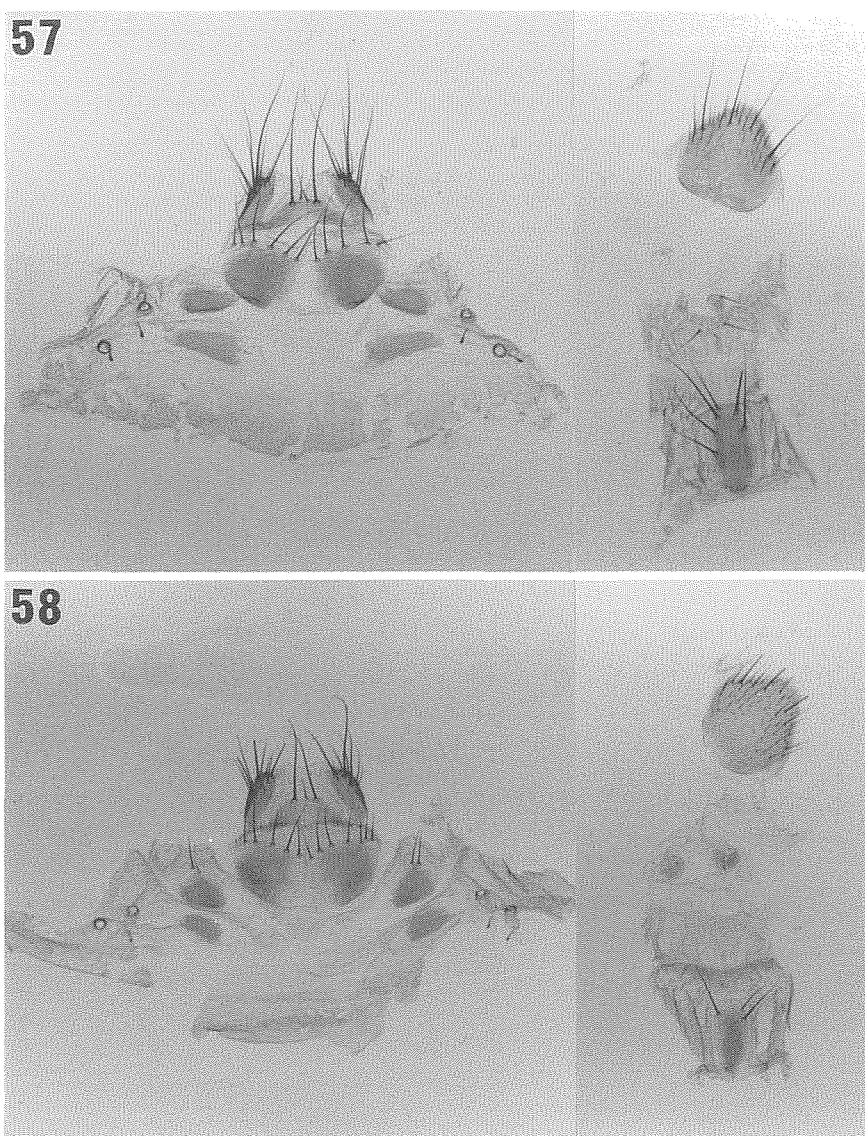
Figs. 43-47. Haustellar mentum of *Hylemya* spp. 43, *flavicruralis* sp. nov., ♂, paratype from Siwapuri; 44, *longirostris* sp. nov., ♂, paratype from Supbu Kharka; 45, ditto, ♀, paratype from Ghora Tabela; 46, *takagii* Suwa, ♂, Syabru - Sing Gompa; 47, ditto, ♀, Dada Kharka - Ghopte. L: length; W: width. Magnification same for the succeeding figures of haustellar mentum.



Figs. 48-54. Haustellar mentum of *Hylemya* spp. 48-49, *detracta*, ♂, Dunche - Syabru; 50, ditto, ♀, Siwapuri; 51, *femoralis* Stein, ♂, Mure nr. Charikot; 52, ditto, ♀, Basantapur; 53, *probilis* Ackland, ♂, Chusa Kharka - Daldung La; 54, ditto, ♀, Magen Gotha - Tare Pati.

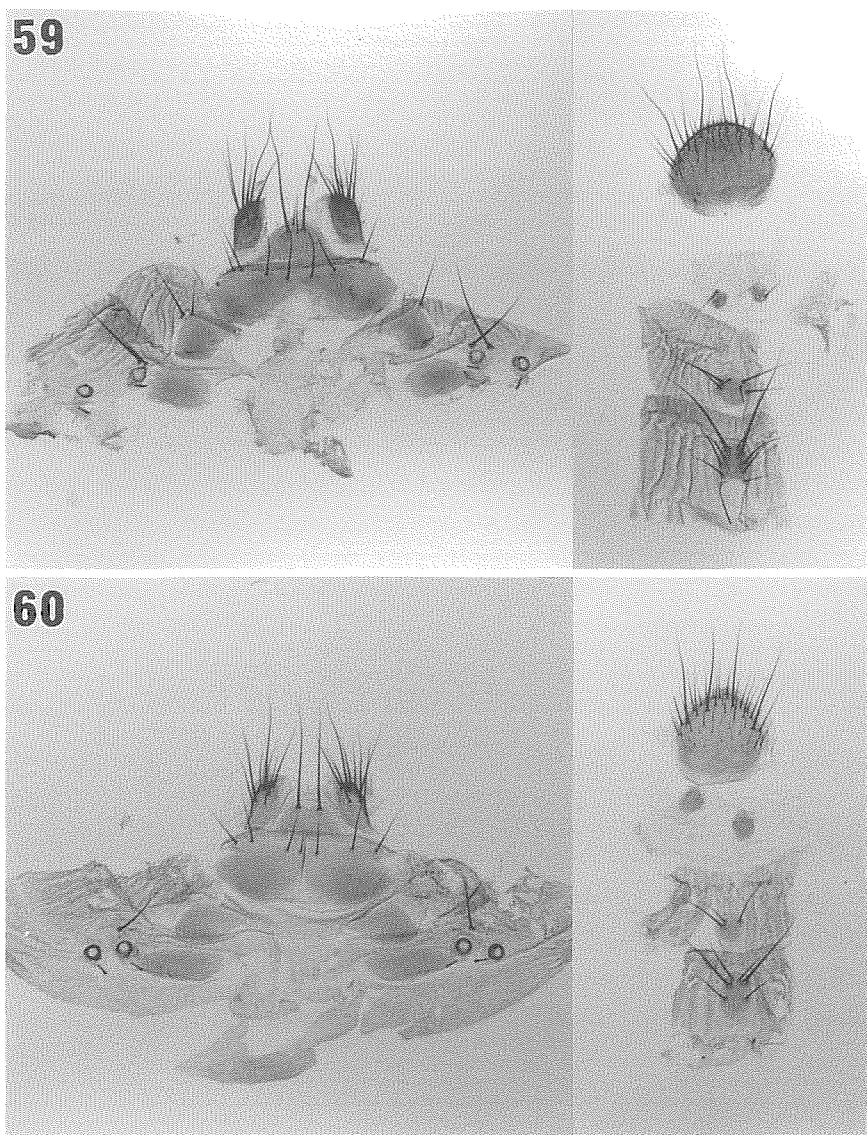


Figs. 55-56. Ovipositor of *Hylemya longirostris* sp. nov. Dongo Kharka - Beding (55) and Ghora Tabela (56). Magnification same for the succeeding figures of ovipositor.

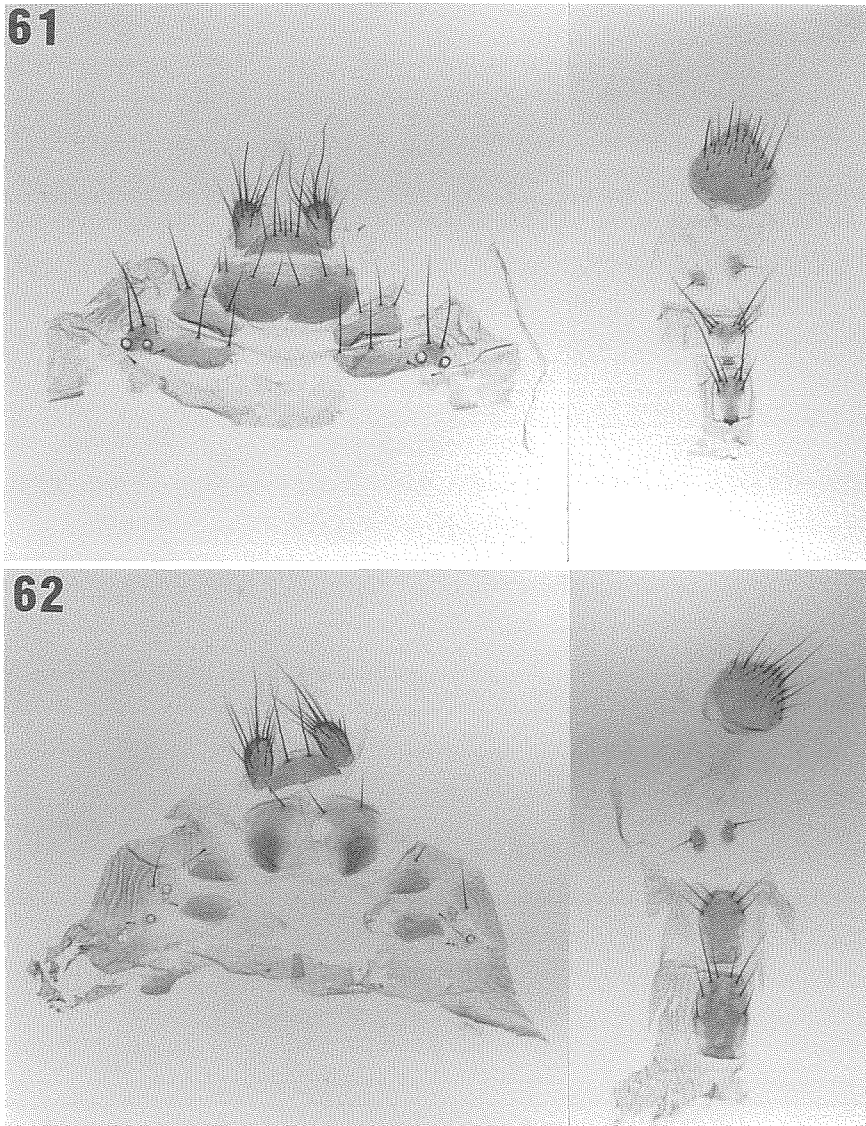


Figs. 57-58. Ovipositor of *Hylemya takagii* Suwa. Dada Kharka - Ghopte (57) and Chusa Kharka (58).





Figs. 59-60. Ovipositor of *Hylemya detracta* (Walker). Siwapuri.



Figs. 61-62. Ovipositor of *Hylemya* spp. 61, *femoralis* Stein, Basantapur ; 62, *probilis* Ackland, Magen Gotha - Tare Pati.